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# The Kishū Army and the Setting of the Prussian Model in Feudal Japan, 1860–1871

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**Abstract**
In 1860–1 the Tokugawa *bakufu* established diplomatic relations with the kingdom of Prussia. The fascination for the Prussian military system rapidly spread in Japan, a land that was destabilized by political struggles between principalities and engaged in a military modernization. As a consequence of the Austro-Prussian War and the Second Chōshū War in 1866, the principality of Kishū was the first Japanese state to apply the Prussian system to its army. This was the root of the crucial Prussian influence on the Imperial Japanese Army from the late nineteenth century.

**Keywords**
Bakumatsu, conscription, Dutch decline, Japanese military revolution, Prussian army reforms, needle-gun

## I

In 1860 the kingdom of Prussia introduced a revolutionary reform of its army in order to regain its military power, and to achieve its ambition of hegemony over Germany. Before this reform the Royal Prussian Army was considered a contemptible force, good only for parading. But during the following decade Prussian victories impressed the world, and eventually influenced many foreign armies, including the Japanese.

When the Prussian military reforms started, Japan was a mere geographical term, inhabited by more than 30 million people living under a feudal system. Their wealth was evaluated according to the production of rice, with the koku[1] as the unit of economic power. In terms of political geography, Japan was divided between a shogunal empire and

1 A koku corresponded to 180 litres of rice. It was defined as the theoretical quantity of rice to feed one person for a year.

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numerous principalities,[2] not unlike Germany in that it was made up of various sovereign states. The shogunal empire was led by a dual monarchy shared between the *tennō*,[3] who was the spiritual ruler, and the *shōgun*, officially titled *taikun*[4] in diplomatic relations with the west, who was the temporal ruler. The Tokugawa dynasty had held the shogunal power since the seventeenth century, and had established its *bakufu*.[5] Its imperial realm, the mightiest and largest feudal state in Japan, was composed of many fiefdoms of Tokugawa retainers, major harbours, strategic fortresses, such as Nagasaki and Ōsaka, and various properties, such as mines. The other feudal states were princedoms with their own hereditary rulers, banners, governments, armies, finances, territories, and identities. They were classified in three categories defined by the nature of their relationship with the *bakufu*: the *fudai* or tributaries of the *bakufu*, the *shinpan* or allies ruled by collateral households of the Tokugawas, and the *tozama* or outer states that nevertheless were compelled to recognize the supremacy of the Tokugawa Empire.

This Japanese world was undergoing a period of modernization based on western learning derived especially from the kingdom of the Netherlands, which was still the most influential European power in the region. For two centuries, and until the end of the isolation in 1854, the Netherlands was the only western country to maintain a relationship with Japan. However, during the 1860s, the Dutch monopoly was challenged by other western powers including, in military matters, Prussia.

The Prussian military revolution and Prussian-Japanese formal relations began the same year. On the misty morning of 4 September 1860 a warship entered Edo Bay, dominated by the snowy cone of Mount Fuji.[6] Over the stern flew a white pennant with an iron cross and a black eagle, the battle flag of the Royal Prussian Navy: an unusual presence in the seas of the Far East. This 2320 ton steam corvette, the *Arcona*, commissioned in the royal shipyards of Danzig in 1858,[7] was the flagship of a small expeditionary squadron, commanded by Commodore Henrik Sundewall, and included three other ships: the sail frigate *Thetis* and the schooner *Frauenlob* as escort, and the clipper *Elbe* with a cargo of supplies and gifts. A diplomatic expedition led by Count Friedrich zu Eulenburg was on board.[8] Its missions were to establish official relations and to conclude commercial treaties with the Tokugawa *bakufu* of Japan, the Qing Empire of China, and the kingdom of Siam, so as to provide a legal basis for the expansion of Prussian trade. Commercial exchanges between Europe and Asia had been increasing since the 1840s, and Prussia could no longer accept that its interests in the Far East relied on other western powers, such as the Netherlands and Britain.

On 24 January 1861 Taikun Iemochi Tokugawa signed the Treaty of Amity, Commerce and Navigation between the *bakufu* and Prussia, but the establishment of diplomatic and commercial relations was not the only result of the Eulenburg expedition.[9] Knowledge of

2 K. Ogawa, *Edo Bakuhan Daimyō-Ke Jiten* (Tokyo, 1992).
3 Heavenly sovereign.
4 Great prince.
5 The *bakufu* (tent office) was the shogunal government.
6 A. Nakai, *Eulenburg Nihon Ensei Ki*, I (Tokyo, 1969), p. 5 (Japanese translation of Friedrich, Count Eulenburg, *Die Preussische Expedition nach Ost-Asien*, Prussia, 1864).
7 Op. cit., preface, p. 11.
8 Op. cit., preface, p. 8.
9 Op. cit., pp. 73–5.

the Prussian military system was also introduced. The first indication of military influence appeared on 15 October 1860, just after the breakfast at the legation between Prussian and *bakufu* diplomats. The *bugyōs* (magistrates) of foreign affairs, Tadayuki Sakai and Toshihiro Hori, and the Dutch language interpreter, Takichirō Moriyama, immediately reacted when they saw the name of Maximilian von Brandt, the attaché to the expedition.[10] The *bakufu* officials asked if he was a relative of General of the Infantry Heinrich von Brandt, and learned that he was his son. General Brandt's name was known in Japan because of his book *Grundzüge der Taktik der drei Waffen: Infanterie, Kavallerie und Artillerie* (1833), which had been translated in 1846 by Shunzan Suzuki under the title *Sanpei Kappō*, and again in 1850 by Chōei Takano as *Sanpei Takuchiiki*. Another Prussian book of tactical studies from the same period, *Taktik der drei Waffen, Infanterie, Kavallerie und Artillerie*, written in 1834 by General of the Artillery Karl von Decker, who was then a lieutenant colonel, was also famous in Japan, where it had been translated in 1848 by Genpo Mitsukuri, under the title *Sanpei Sōji Seigi*. Suzuki, Takano, and Mitsukuri were scholars who had translated these Prussian texts from their Dutch editions into the Japanese language. These texts, studies of operations during the Napoleonic Wars, and usually referred to by Japanese scholars as the 'tactics of the three arms', became very popular in Japan after the Opium War, and were regarded as basic to military modernization. As a result, even before the start of Prussian-Japanese relations, a record of decisive Prussian military influence in Japan already existed. However, it was an unintentional one. Prussian officers did not try to introduce their military literature in Japan in the 1840s, and the Japanese did not translate Brandt because he was of Prussian origin.

During the negotiations with the Eulenburg expedition, the *bakufu* magistrates asked many questions about the Prussian army. In particular, during the meeting of 13 December 1860, *Bugyō* of Foreign Affairs Machitsune Takemoto was very curious about compulsory military service and citizen-soldiers.[11] The samurais also acquired their first contact with Prussian weaponry. On 7 December 1860, with Edo quiet under the snow, and during the absence of Count Eulenburg, who was visiting the naval squadron, some *bakufu* samurais working at the legation came to the improvised guardhouse of the Prussian marines, and met the sergeant in charge of the sentries.[12] They asked if they could be shown the needle-gun rifles, and to load a weapon. After the demonstration authorized by the Prussian sergeant, one of the samurais even received a simplified drill lesson with the orders given in German. But, when he tried to borrow the weapon until the following day, the sergeant strictly refused. However, this incident revealed how much the *bakufu* was already aware of the breech-loading technology particular to the Prussian needle-gun rifle, and was enthusiastic about it.

In 1862 the first *bakufu* embassy was sent to ratify the treaties with the European powers. The mission led by *Bugyō* of Foreign Affairs Yasunori Takeuchi arrived in Europe on 3 April.[13] The treaties were first ratified in Britain and the Netherlands. On the evening

10 Op. cit., pp. 217–19.
11 Op. cit., pp. 18–19.
12 Op. cit., pp. 10–11.
13 T. Miyanaga, *Bunkyū Ninen no Europa Hōkoku* (Tokyo, 1989), pp. 13–32.

of 18 July the *bakufu* diplomats entered Berlin after a long journey by rail, and on 21 July the treaty of 1861 was ratified with Prussia.[14]

But the visit to Prussia also had a military purpose: to observe the army so much praised by the Eulenburg expedition. On the morning of 28 July the *bakufu* diplomats travelled by train and landau carriages to Potsdam, where they attended the large-scale field exercises of the royal guard.[15] The Japanese had never witnessed such military might and science, which overwhelmed everything they had imagined after reading Brandt about the tactics of the three arms.

The reality of 1862 was not as wonderful as it appeared to the inexperienced eyes of the *bakufu* diplomats. The Royal Prussian Army was engaged in an uncertain process of reform, under the supervision of the minister of war, Lieutenant General Albrecht von Roon, and the military model praised by the Eulenburg expedition existed only on paper. When the Takeuchi mission admired the manoeuvres at Potsdam, the standing strength had risen from 130,000 to 210,000 regulars,[16] largely armed with Dreyse needle-guns.[17] However, the reserves were not yet completely formed, the pioneers and the Landwehr were still equipped with Model 1839/55 percussion rifle-muskets, and the army had had no campaign experience since 1815, except the First Schleswig War of 1848–51. On questions of tactical doctrine, the officers were deeply divided between a traditionalist faction, well represented by the elderly Field Marshal Friedrich von Wrangel, and a modern faction led by Lieutenant General Helmuth von Moltke, who, as chief of the general staff, had no command authority to impose his vision. In fact, the Prussian army was like the other western armies: mass tactics still prevailed, as attested by the exercise regulation of 1847 that was still in force for the Prussian infantry.[18]

In 1862 the *bakufu* was also in the middle of a major transformation called the Bunkyū reforms. In order to revive the Tokugawa rule and to strengthen the empire, these reforms were administrative, fiscal, and also military. On 19 June 1861 the *bakufu* had constituted a committee to formulate a plan of military modernization, and in July 1862 a regular army and navy were established.[19] For the first time the Tokugawa Bakufu Army was a standing and reasonably modern force of 13,995 men. Based on the principles revealed to Japan by Brandt, it was made up of three arms: infantry, cavalry, and artillery.[20] The Dutch model was chosen for the tactics and the organization, because the *bakufu* military

14 Op. cit., pp. 158–60, 163–5.

15 Op. cit., p. 171.

16 'Notice statistique indiquant les ressources militaires des principaux états de l'Europe', *Journal de l'Armée Belge* XVI (1859), p. 35; E. Stoffel (colonel), French military attaché in Prussia, *Rapports militaires écrits de Berlin 1866–1870* (Paris, 1871), pp. 48–53, 56–60, 64; D. Walter, *Preussische Heeresreformen 1807–1870* (Paderborn, 2003), pp. 378–80.

17 W. Menges (general-major), *Die Bewaffnung der Preussischen Fusstruppen mit Gewehren Büschen von 1809 bis zur Gegenwart* (Oldenburg, 1913), pp. 40, 46; W. Eckart and O. Morawietz, *Die Handwaffen des Brandenburgisch-Preussisch-Deutschen Heeres 1640–1945* (Hamburg, 1973), pp. 111, 139.

18 *Exerzir-Reglement für die Infanterie der Königlich Preußischen Armee vom 25. Februar 1847* (Berlin, 1847).

19 K. Katsu, *Rikugun Rekishi* (Tokyo, 1974), Katsu Kaishū Zenshū III, roll 20, ch. 6, pp. 321–3.

20 Op. cit., p. 337.

was more familiar with the Dutch language and military science. Moreover, it was not yet possible to contemplate seriously a Prussian model for the new shogunal army, especially when the Prussian army was still at an early stage of its reform, and was still an object of mockery for many European powers.

## II

The second decisive step towards the establishment of the Prussian model in Japan was reached around 1866, in the combined contexts of the Austro-Prussian War and the Second Chōshū War. The simultaneous victory of Prussia in Germany and the rout of the Tokugawa *bakufu* in Japan led the principality of Kishū to be the first Japanese state to change its army from the Dutch to the Prussian model.

Since 1862 the *bakufu* had been struggling against the *tozama* principality of Chōshū, which had adopted the Sonnō Jōi[21] ideology as its new policy with the object of overthrowing the Tokugawa dynasty.[22] Successive crises and military campaigns led to the decisive Second Chōshū War of 1865–6. Chōshū called it 'War on Four Sides', owing to the four different fronts of Iwami in the north-west, Aki in the north-east, the island of Ōshima in the south-east, and Kokura at the south of the Shimonoseki Strait.[23] The war started on 7 June 1866 with a naval bombardment and the landing of *bakufu* and Matsuyama infantry at Ōshima.[24] The principality of Kishū provided both the field commander for the entire *bakufu* coalition and the second most important contingent on the crucial Aki front.

Kishū was a *shinpan* state ruled by the Kishū-Tokugawa household, a collateral branch of the Tokugawa dynasty established in 1619 by Yorinobu Tokugawa, tenth son of Shōgun Ieyasu Tokugawa.[25] This relation with the Tokugawa *bakufu* was strengthened by the fact that this household was also one of the Go-San-Ke.[26] The territory of the principality extended along the angle of the large peninsula to the south of Ōsaka, between the Pacific Ocean and the mountains. The main castle was in the north, in the princely capital of Wakayama, situated at the mouth of the Kii River. Most of the towns lined the coast, and so were backed by the mountains. They included the three secondary castles of Tanabe, Shingū, and Tamaru.[27] The principality had a population of 460,000 inhabitants, and wealth of 555,000 koku.[28] This stipend was the sixth largest in Japan, and the wealth of the state was increased by a considerable banking power of more than 200,000 gold *ryō*.[29]

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21 'Revere the *tennō*, expel the barbarians.'
22 A. Craig, *Choshu in the Meiji Restoration* (Oxford, 2000), pp. 178–99.
23 Op. cit., p. 329.
24 C. Totman, *The Collapse of the Tokugawa Bakufu, 1862–1868* (Honolulu, 1980), pp. 228–9.
25 Ogawa, *Edo Bakuhan*, II, p. 573; T. Fujino, *Bakuhansei Kokka to Meiji Ishin* (Tokyo, 2009), p. 141.
26 The Go-San-Ke ('three great households') were the collateral branches closest to the *bakufu*. They ruled the domains of Owari, Kii, and Mito. If the main branch of the Tokugawa had no direct heir, the next *taikun* was selected among the members of these three households.
27 Ogawa, *Edo Bakuhan*, II, p. 573.
28 Op. cit., p. 574.
29 N. Hagihara, *Mutsu Munemitsu*, I (Tokyo, 1997), pp. 56–60.

Accordingly, Kishū was one of the strongest Japanese economies. However, its military power was more limited. From 1856 its army started to modernize according to the Dutch model, when some platoons were trained at the Kōbusho, the shogunal military academy at Edo.[30] But during the following years the conservatives in Wakayama stopped these efforts to modernize.

From June 1865 the Kishū contingent encamped at Ōsaka with the other allied troops of the *bakufu* coalition, in preparation for a war against Chōshū. On 17 September the contingent was assembled on the plain near the castle, to parade in front of the *taikun*.[31] Of the 1500 Kishū troops present on that day, only half of them were soldiers, formed in companies of pikemen combined with matchlockmen and swordsmen.[32] Only the battalion from the fief of Shingū was trained and equipped with modern weapons. The other half of the contingent was composed of bearers.

Most of the armies of the *bakufu* coalition were in the same archaic and poor conditions as the Kishū troops. The *bakufu* magistrates who attended the parade were extremely worried about going to war with such allied troops against the modern army of Chōshū. *Hohei-Kashira*[33] Michihiro Hiraoka from the Tokugawa Bakufu Army addressed these concerns to Saburō Utsunomiya, a young reformer and master of gunnery from Kishū, who was educated in the *rangaku* or Dutch learning.[34] Utsunomiya communicated the worries of the *bakufu* to *Karō*[35] Tadamoto Misuno, who was present at Ōsaka. He was also a reformer and, as the lord of Shingū, he had privately trained his battalion according to the Dutch model, providing them with 600 British Enfield rifle muskets. He wished to modernize the entire Kishū army. But the young prince was under the influence of *Okuyūhitsu*[36] Zenzo Tanaka, a conservative and a Confucianist, who believed in the superiority of the traditional way of warfare. Though the Kishū senior minister, Tadamoto Misuno, was a reformer, the princely government was blocked by an influential conservative clique that had held back any previous efforts to modernize. To end this situation, the master of gunnery returned to Kishū, and every evening visited the office of the *okuyūhitsu*, until they agreed with the advantages of modernization. Prince Mochitsugu Kishū-Tokugawa at last decided to reform the military system. On 11 January 1867 the Kishū infantry was reorganized in ten Dutch-model battalions dressed in kimono-style uniforms, and drilled with a mixture of rifle muskets, smooth-bore muskets, and modified matchlocks. Four of the battalions were made up of samurais,

30 T. Hoya, 'Ansei 3-nen 3-gatsu Shimozone Nobuatsu ni yoru Seiyō-ryū Chōren Zu', *Gazō Kaiseki Center Tsūshin*, no. 30 (July 2005), no. 31 (October 2005), no. 32 (January 2006), no. 33 (April 2006).

31 *Dai Nihon Ishin Shiryō Kōhon*, 2358, p. 131.

32 T. Sakamoto, *Nanki-Tokugawa Shi*, XIII (Tokyo, 1971), p. 189. This work is the record of the events in the principality of Kishū that was written between 1930 and 1933, based on historical documents that have now disappeared. It was found in the Kishū-Tōshōgū, a shrine of the Tokugawa in Wakayama, by Professor Tarō Sakamoto, University of Tokyo, who retranscribed and published the work in 1971.

33 Infantry regiment commander.

34 Sakamoto, *Nanki-Tokugawa*, XIII, p. 190.

35 Senior minister in the princely government.

36 The 'inner right secretary' was the private secretary of a prince.

and the others of *goshis*[37] and townsmen.[38] This infantry, with four batteries of mountain artillery and one squadron of cavalry, constituted the reformed army.

Once more, the Dutch model was used, but not for long. In June and July 1866 Kishū fought Chōshū in the coastal hills of Aki, while Prussia defeated Austria on the plains of Bohemia. During the following months, when Kishū was busy reforming its entire army according to the Dutch model of the *bakufu*, the news of the Austro-Prussian War, and the fame of the Prussian needle-gun rifle, considered as the weapon of the victory, had reached Japan. In the autumn of 1866, through the mediation of Aizu, another *shinpan* principality and strong ally of the Tokugawa *bakufu*, Kishū learned about the exploits of the Prussian infantry, and decided to equip its troops with needle-guns. The choice of this weapon was the turning point in the adoption of the Prussian model.

Aizu was also modernizing its army. During the Hamaguri rebellion of 1864, this principality provided 2000 troops to protect Kyōto against Chōshū. This contingent repelled the enemy bravely, suffering most of its casualties as a result of percussion firearms.[39] The Aizu leaders immediately recognized that these weapons were the key to battlefield victory, and began to organize battalions according to the Dutch model.[40] Moreover, they developed a modern medical service. The new western weapons introduced on the Japanese battlefields inflicted injuries of a type that were unknown to the native physicians, and Aizu expected them to learn western military medicine. But the reforms did not make much progress until the Second Chōshū War, and had to be accelerated after the defeat. In October 1866 Tōsa Tanaka, the *karō* of Aizu, visited Kishū, to meet the government of Wakayama, and to ask the reformer Matatarō Tsuda for advice.[41] The relationships between the two countries, both of them loyal to the *bakufu*, were excellent, and they agreed together to purchase Prussian firearms. Some Aizu officials had the appropriate connections to obtain such weapons, and Kishū agreed that they could negotiate this arms deal in the name of the two principalities.

The needle-gun rifles were sold by the recently founded Lehmann-Hartmann Trading Company established at Nagasaki. Carl Lehmann was a native of the Grand Duchy of Oldenburg.[42] In 1861 he was recruited by the Dutch East India Company to be chief engineer of the new *bakufu* shipyard at Nagasaki, and arrived in Japan on 7 April 1862.[43] But the shipyard was closed at the end of 1865. Jobless, Lehmann met Oscar Hartmann, citizen of the Free and Hanseatic City of Hamburg, who was working for the British company Jardine-Matheson. In 1866 the two adventurous Germans decided to establish their own lucrative arms business. The main connection between Aizu and this company was a master of *rangaku* and military science named Kakuma Yamamoto. He was introduced to Lehmann

37 Military farmers.
38 Sakamoto, *Nanki-Tokugawa*, XIII, pp. 201–2.
39 Y. Araki, *Kindai Nichi-Doku Kōshōshi Kenkyū Josetsu: Saisho no Doitsu Daigaku Nihonjin Gakusei Majima Seiji to Carl Lehmann* (Tokyo, 2003), pp. 37–8.
40 Op. cit., p. 89.
41 M. Tsuda, *Tsuda Izuru Koden* (Tokyo, 1917), pp. 14–15.
42 C. Yamada, *Nihon Gunsei no Kigen to Doitsu: Karl Köppen to Chōheisei oyobi Fu-Futsu Sensō* (Tokyo, 1996), p. 78.
43 Araki, *Kindai Nichi-Doku*, p. 51.

by the Dutch army physician Antoon Bauduin, director of the modern hospital of the *bakufu* at Nagasaki, whom he met in order to have surgery on his eyes.[44]

On 27 January 1867,[45] Kakuma Yamamoto and Tatemaki Nakazawa, Aizu emissaries who also represented Kishū, met Lehmann in secret at Hyōgo.[46] During the discussions, the Oldenburg merchant insisted on the decisive role of the needle-gun in the Prussian victory over Austria, and offered to rearm Aizu and Kishū for a reasonable price. Nakazawa informed the two governments of the proposal, while on 6 and 7 February *Karō* Tanaka stayed at Hyōgo, in order to negotiate the purchase of needle-gun rifles.[47] The contracts for 3000 rifles for Kishū and 1300 for Aizu were concluded on 29 April and 4 May 1867 respectively.[48] In the case of the Kishū contract, Lehmann-Hartmann assured the principality that the company would provide the 3000 needle-gun rifles within a year, with bayonets, slings, maintenance tools, 300,000 cartridges, and three cartridge-manufacturing machines, for the total sum of 17,142 Mexican silver dollars[49] and 85 cents, or 15,000 gold *ryō*.[50]

Lehmann was now obliged to find and deliver the weapons before the summer of 1868, as promised by the contracts. He left Nagasaki on 24 June 1867, and landed in Hamburg in August.[51] During the autumn he stayed at Bückeburg, capital of the principality of Schaumburg-Lippe. It was the smallest German state, and its population numbered only 30,000 inhabitants. During the Austro-Prussian War, it opted for a cautious neutrality, in spite of pro-Austrian feelings. Schaumburg-Lippe also maintained the smallest German army: the Princely Schaumburg-Lippe Jäger Battalion, composed of only 385 light infantrymen.[52] However, these troops were elite marksmen using the excellent Doersch and von Baumgarten Model 1861 needle-gun carbine. The battalion was organized in three companies,[53] and in 1866 two of them sheltered in the fortress of Mainz, which was declared a neutral enclave in the grand duchy of Hesse,[54] while one company remained in Bückeburg to protect the princely household and the capital. When the war ended, Schaumburg-Lippe became a vassal state of Prussia within the North German Confederation. The disbanding of its tiny army imposed by Prussia was scheduled for 7 October 1867, in accordance with the bilateral military convention of 30 June 1867,[55] and the Westphalian Jäger Battalion No. 7 of the Royal Prussian Army entered Bückeburg.

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44 Op. cit., p. 97.
45 Op. cit., pp. 64–5.
46 Nowadays Kōbe.
47 Araki, *Kindai Nichi-Doku*, pp. 64–5.
48 Op. cit., p. 106.
49 The Mexican silver dollar, like the Spanish dollar previously, was used as the main currency for international trade, owing to the past worldwide influence of the Spanish colonial empire, including in the Far East.
50 T. Shigefuji, *Nagasaki Kyoryūchi Bōeki no Kenkyū* (Tokyo, 1961), pp. 136–40.
51 Yamada, *Nihon Gunsei*, p. 79.
52 'Notice statistique', p. 33; S. Sutherland, *The Organization of the German State Forces in 1866* (Solihull, 2010), p. 81.
53 C. Bredow (general-major), *Historische Rang- und Stammliste des Deutschen Heeres* (Krefeld, 1974), p. 476 (1st edn, 1905).
54 Hesse-Darmstadt.
55 G. Knake, *Preussen und Schaumburg-Lippe 1866–1933* (Hildesheim, 1970), p. 43.

Suddenly the arsenal of the princely army became a surplus, because its needle-gun carbines were Doersch and von Baumgarten models, and not the Dreyse system of the Prussian regulation. This was a godsend for Lehmann. Moreover, the Doersch and von Baumgarten system was an improved version of the Dreyse developed at Suhl by the company of Joseph Doersch, a former employee of Dreyse, and Cramer von Baumgarten, a reserve major of the Brandenburgian Fusilier Regiment No. 35 of the Royal Prussian Army. Lehmann negotiated with the princely government and the chamber of commerce, and finally bought 600 surplus carbines.[56] The contract with Kishū specified 1000 carbines and 2000 infantry rifles. Already he had purchased 600 carbines. As these firearms were Doersch and von Baumgarten needle-guns, the rest of the consignment had to be the same weapon system. Consequently, Lehmann contacted the Doersch and von Baumgarten Company to produce the other needle-guns at Suhl.

The choice of the instructor to drill the Kishū troops with the needle-gun system was decided by the selection of the Doersch and von Baumgarten weapons from Schaumburg-Lippe. With the princely army disbanded, many officers and soldiers were unemployed. These men were professionally drilled to use the Doersch and von Baumgarten needle-gun system, and one of them was introduced to Lehmann in October 1867. Carl Köppen was born on 23 August 1833, at Bückeburg,[57] the elder son of a dressmaker. He was a young and solid man, educated, clever, and a great soldier and marksman, but had no battlefield experience. On 1 April 1851, one year after his graduation from the Gymnasium of Bückeburg, he enlisted in the Schaumburg-Lippe Jäger Battalion, and rapidly rose through the ranks: corporal on 10 July 1853, sergeant on 6 May 1859, and, only a few weeks later, sergeant major on 28 May. Köppen also served as instructor to the children of the princely household of Schaumburg-Lippe.[58] In 1859 the Second Austro-Piedmontese War started in Italy, and Schaumburg-Lippe contributed to the German response against the potential threat of France[59] on the Rhineland, by deploying Köppen's company to the gigantic fortress of Luxemburg nested on the wooded heights over the Mosel River. From 28 June to 14 August 1859, Köppen's closest experience of war was to watch the faraway horizon in the direction of France from the top of Luxemburg's walls.

After the Austro-Piedmontese War, Schaumburg-Lippe decided to adopt the needle-gun system, but without depending on Prussia, and cooperated with Hanover in studying its technology. During 1860 Captain Funck and the court physician, Georg König, were dispatched to Suhl, and the following year the carbines were ordered from the Doersch and von Baumgarten Company. Köppen joined the mission to supervise the tests and the production of the Doersch and von Baumgarten carbines.[60] By 1862 the princely army was fully armed with needle-gun carbines. In 1864 Köppen was part of a detachment sent to Hanover to test firearms and to be trained in marksmanship, and received the Royal Hanoverian Service Medal. The Royal Hanoverian Army, a mixture of British and Prussian

56 Araki, *Kindai Nichi-Doku*, pp. 154–5.

57 M. Mehl, *Carl Köppen und sein Wirken als Militärinstrukteur für das Fürstentum Kii-Wakayama 1869–1872* (Bonn, 1987), pp. 30–1.

58 Op. cit., p. 31.

59 Allied to Piedmont.

60 Mehl, *Carl Köppen*, pp. 31–2.

influences, was highly respected for its soldiering, and was one of the best disciplined, trained, and equipped armies.

However, in 1867, with Schaumburg-Lippe annexed to Prussia and the army due to be disbanded, Köppen faced an uncertain professional future and financial difficulties. On 1 October he retired from the army, before the arrival of the Prussian garrison, and did not enlist into the Westphalian Jäger Battalion No. 7.[61] He desperately needed a new job, just as Lehmann visited Bückeburg. In October 1867 Lehmann offered him a contract as instructor in the Kishū army. But Köppen had married Elisabet Boudry, a Swiss from Neuchâtel, on 4 November 1860, and was soon the father of three children. For these reasons, he hesitated, but not for long, and he signed the contract with Lehmann-Hartmann.

## III

The instructor and the needle-guns did not arrive in Kishū for the deadline of summer 1868, partly because the Boshin War, the final clash between the pro- and anti-Tokugawa coalitions, started on 27 January 1868 with the battle of Toba-Fushimi. On 4 July, after the battle of Ueno, Edo was seized by the Satsuma–Chōshū alliance,[62] and the Tokugawa *bakufu* capitulated. The Boshin War was over but, until the autumn, the Satsuma–Chōshū alliance fought a pro-Tokugawa coalition of northern principalities led by Aizu and Sendai in a second campaign. Finally, in Ezo,[63] the last leaders and troops to resist the new regime established their own government headed by Takeaki Enomoto, former vice commander of the shogunal navy, which held until 18 May 1869. Kishū was not a major belligerent in this war, and was rather passive, although it helped to evacuate by sea the retreating *bakufu* forces after the battle of Toba-Fushimi. However, it was difficult and dangerous to travel in Japan, including Kishū. For this reason, and also because the preparation of the mission and the weapons took more time than expected, the arrival of Köppen and the needle-guns was delayed. In 1869 Kishū enacted further army reforms, and the debate about which western model to follow continued. The infantry was to be trained by Köppen to use the needle-guns. But it was not yet clear if the army would be based on the Dutch, French, British, or Prussian system.

At the end of 1868 Councillor Matatarō Tsuda was charged by Prince Mochitsugu to plan and supervise the reform of the army. The first measure was to improve the administrative structure. On 28 March 1869 the *gunmukyoku*, the office of military affairs, was founded, and Tsuda became its minister.[64] Kishū then maintained nine infantry battalions,

61 Op. cit., p. 31.

62 This alliance between Satsuma and Chōshū formed in secret after the Second Chōshū War, to overthrow the Tokugawa *bakufu*. Aki was the first principality to declare its desire to join this alliance, as early as September 1867. In December 1867 Satsuma and Chōshū took control of Kyōto, and received an edict of the *tennō*, in fact dictated by conspirators from the Heavenly Court and the two allied domains. Immediately after, the princes who were present in Kyōto joined, freely or under duress, the anti-Tokugawa coalition.

63 Nowadays Hokkaidō.

64 Sakamoto, *Nanki-Tokugawa*, XIII, pp. 228–9.

one cavalry squadron, and two mountain artillery batteries.[65] The main weapons were British Enfield rifle muskets,[66] copies of Dutch muskets, and British mountain-guns, which were manoeuvred according to the Dutch regulations.[67] The strength reached about 3500 men, in accordance with the convention of 23 July 1868 drawn up by the *dajōkan*,[68] the imperial government replacing the *bakufu*, which established a theoretical ratio of 75 troops for 10,000 koku.[69] Moreover, via the decision reached by the *dajōkan* on 17 February 1868, the fief of Shingū became an independent principality under the rule of Tadamoto Mizuno, former *karō* of Kishū, and its troops left the service of Kishū to form the army of the new state: 12 musketeer platoons, organized according to the British model,[70] for a population of nearly 55,000 inhabitants and a stipend of more than 40,000 koku.[71]

On 9 April 1869 the new military office of Kishū reduced the army to six infantry battalions, one cavalry squadron, two mountain artillery batteries, and some engineers.[72] The infantry was organized into the 1st and 2nd Guard Battalions,[73] the 3rd Garrison Battalion,[74] the 4th Free Skirmisher Battalion,[75] and the 5th and 6th Levy Musketeer Battalions.[76] The first four battalions were recruited from samurais, while the last two were made up of levies among the peasants, artisans, and merchants. With the levy battalions and the *kōtai*[77] system, Tsuda expected to expand the concept of commoner soldiers initiated earlier during the wars against Chōshū. Each of these battalions was structured in eight platoons of 40 men. In consequence, the new strength of the army totalled only around 2500 regular troops.

Until 1868 most of the Japanese armies used the Dutch model. However, after the Boshin War, it was rapidly replaced by the British and French models. Around 50 per cent of the Japanese armies became based on the British model, about 15 per cent on the French, and 12 per cent were still on the Dutch.[78] The Netherlands had suddenly withdrawn, and the Japanese principalities had to find new providers of military science. This debate was also very intense in Kishū, between British and French factions. But this was also the opportunity to settle on a Prussian model, especially because Köppen and the needle-guns were expected to arrive the same year.

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65 *Wakayama-Ken-Shi 5* (Wakayama, 1876), Wakayama prefecture.
66 Sakamoto, *Nanki-Tokugawa*, XIII, p. 208.
67 Op. cit., p. 213.
68 The *dajōkan* (grand council) was led by the victorious principalities of Satsuma and Chōshū. It included a *gunmukan* (department of military affairs) created on 21 May 1868 to control the strength, discipline, training, and expenditures of all the princely armies. This department was divided between the services of the armies, navies, armaments, fortifications, ships, and horses.
69 *Hōkibunruitaizen* IX (Tokyo, 1978), Cabinet Records Bureau, military affairs, p. 8.
70 *Wakayama-Ken-Shi 11* (Wakayama, 1876), Wakayama prefecture.
71 Ogawa, *Edo Bakuhan*, II, p. 580.
72 *Wakayama-Ken-Shi 5*, Wakayama prefecture.
73 *Eiji*.
74 *Ryō-hohei.*
75 *Yūgekitai*.
76 *Kōtai-hei.*
77 This system, meaning ‘change’, ‘relief’, or ‘shift’, was a type of conscription for commoners.
78 M. Asakawa, ‘Ishin Kengun-ki ni okeru Heishiki Mondai’, *Gunji-shi Kenkyū* XLII (2006), pp. 7–8.

British firearms were widely sold in Japan, especially the Enfield muzzle-loading rifle and, after the Boshin War, the Snider breech-loading rifle. The Sniders were the first breech-loading weapons used to equip Japanese armies on a large scale. Moreover, Britain had favoured the Satsuma–Chōshū alliance instead of the Tokugawa *bakufu*. For these reasons, many principalities adopted British regulations. This British influence also touched Kishū, where a faction in favour of the British model was growing in the army. On 20 March 1869 two British instructors arrived in Wakayama to train the infantry, maybe with the regulation of 1862 for the Enfield rifle muskets.[79] But their influence on the military system in Kishū was probably very limited, and the army remained essentially based on its earlier Dutch model.

From late April an experimental French model battalion was also organized by native officers previously trained in Edo. In 1865–6 Emperor Napoléon III had agreed to send military instructors to the *bakufu*. The French military mission left Marseilles on 19 November 1866, and arrived at Kanagawa on 13 January 1867. In total 1400 cadets were recruited among the retainers of the Tokugawa *bakufu* and the allied principalities. From 6 April 1867 Kishū also started to enlist samurais into the French model cadet corps at Edo.[80] During the Boshin War, the cadets were used as field troops in the *bakufu* army but, with the fall of the Tokugawa dynasty and the end of the French mission, on 3 March 1869 the cadets from Kishū were ordered back home.[81] Some of them received important commands in the princely army, particularly Yasumichi Endō in the infantry, Rinkichi Abe in the cavalry, Ryūnosuke Okamoto in the artillery, and Seijirō Kondō in the engineers. On 25 April former cadets also selected 500 regulars to create a French model battalion commanded by Major Yasumichi Endō, with the intention of expanding this experiment to the entire army, which was still essentially organized on the Dutch-British model.[82]

British and French model factions quarrelled increasingly about the military system to adopt in Kishū, dividing and weakening the army. Tsuda had to end this dispute, and he studied the British and French armies to compare their capacities, and to select the best military model.[83] He also evaluated the Prussian army, because of the victory which had astonished the world in 1866, and because Köppen and the needle-guns were on their way to Japan. The Prussian concept of citizen-soldiers recruited by universal military service, as well as the revolutionary character of Prussian tactics, seduced him. Tsuda was a revolutionary reformer who planned a large four-class[84] army from 1866. The training of non-samurai troops had already begun with the two levy musketeer battalions raised in April. Tsuda wanted to end the dispute between the British and French factions, to unite the corps of officers, and to dedicate them to the unique and common objective of building the greatest army in Japan. For all these reasons, during the summer of 1869, he decided definitively to choose the Prussian system as the model for the Kishū army.

79 Sakamoto, *Nanki-Tokugawa*, IV, p. 538.
80 Op. cit., XIII, p. 212.
81 Op. cit., pp. 215–18.
82 Op. cit., pp. 218–19.
83 Op. cit., p. 249.
84 The ‘shi-no-ko-sho’ society: samurais, peasants, artisans, and merchants.

With the princely decree of 8 December 1869, the army was reorganized once again, in order to be ready to work with Köppen.[85] It was a radical change. The new conscription system called up all able-bodied men on reaching the age of 20, without distinction of social class, to serve in the army, for a period of between three and five years, depending on the arm. In exchange for their military service, these conscripted commoners received a surname, which was, until then, a privilege of the samurai class. Immediately a first contingent of 600 men was called up.[86] The old army was disbanded, and these conscripts were mixed with samurai volunteers aged between 18 and 40 to form new battalions. For the first time in Kishū, samurais and commoners served together in the ranks. When Köppen arrived, only two of these new infantry battalions had been raised from the first contingent of conscripts and, with the cavalry and the artillery, they constituted most of what remained of the princely army.

## IV

On 15 December 1868 Köppen left Hamburg on board the brig *Heinrich* sailing for Japan.[87] On 2 July 1869 he landed at the hectic international harbour of Hyōgo, which looked like a wild border town, and the same day he took a steamer across the bay to Ōsaka.[88] Köppen reported to the Lehmann-Hartmann Company, which had moved its seat from Nagasaki to Ōsaka, closer to Kishū, its major client, in 1869. The principality was not yet ready to receive him, and he stayed at Ōsaka.

Later in July a detachment of 20 young samurais from Kishū was sent to him, to be trained as his first recruits.[89] With them came majors Yasumichi Endō and Heishirō Okamoto, who were the liaison officers, and also new students of Prussian military science. In the small Senshitsushiki bastion of Kishū at Terajima,[90] between the castle of Ōsaka and the Yodo River,[91] he drilled them hard for six hours a day, to make them the core of the new army. On 15 December, Köppen and the samurai detachment finally left Ōsaka by steamer, to reach Wakayama, capital of wood, cob, and paper clustered around an estuary dominated by the horned roofs of the princely castle.[92] The next day Köppen settled in a residence arranged with some western furniture. Two aides-de-camp and ten soldiers were put at his disposal. He also brought with him a private cook from Ōsaka. His first official activity was on 17 December, when he visited Minister Tsuda.[93] They had to cooperate closely, and their partnership was efficient and friendly.

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85 Sakamoto, *Nanki-Tokugawa*, XIII, pp. 238–41.

86 N. Umetani, 'Shinshutsu no Karl Köppen no Nikki oyobi Kaisōroku ni tsuite', *Wakayama City Museum Research Bulletin* VIII (1993), p. 13.

87 M. Ishikawa, 'Wakayama Han Gunji Kyōkan Karl Köppen Kaisōroku I', *Wakayama City Museum Research Bulletin* VII (1992), p. 75.

88 K. Köppen, 'Wakayama Tagebuch', 1869–71, Wakayama City Museum, p. 1.

89 Umetani, 'Shinshutsu no Karl Köppen', p. 8.

90 Hagihara, *Mutsu Munemitsu*, I, pp. 165, 178, 248.

91 The Yodo River links Kyōto to Ōsaka, and forms a strategic road to defend or invade Kyōto.

92 Köppen, *Wakayama Tagebuch*, p. 1.

93 Op. cit., p. 1.

On 23 December, Köppen inspected the army for the first time.[94] The parade ground was surrounded with tents. In the middle of the square girdled by curtains marked with the six-hollyhock crests of Kishū, about 1000 small and poor men in black kimono uniforms formed two infantry battalions, a squadron of cavalry, a battery of mountain artillery, and a military band. At 9 a.m. Köppen, accompanied by Minister Tsuda and Major Okamoto, reviewed the troops on horseback. The inspection was followed by successive drill exercises until 5 p.m., for Köppen wanted to evaluate the quality of the army. The companies moved correctly, but there were many imperfections in the details, and the troops sometimes appeared childish. At the end of the demonstration the foreign instructor chose the 400 best officers and soldiers, to organize them into a skirmisher battalion, with the 20 cadets that he had trained at Ōsaka as sergeants, while the remaining 400 musketeers formed a guard battalion.[95] The army was provisionally reduced to two infantry battalions, with their support of cavalry, artillery, and engineers. However, on 1 January 1870 the second contingent of 500 conscripts was called up from the third battalion.[96]

The troops quickly improved their individual skills. Their new training included drill, marches, close combat, bayonet work, and also military gymnastics.[97] On the afternoon of 5 January a first company of 94 men, probably skirmishers, received their needle-gun rifles and trained hard with Köppen until the end of the day.[98] From 16 January the army initiated Prussian training at company level, starting with movements in column, repeated again and again, and switched in all directions.[99]

Another important step was taken on 18 January, when the office of military affairs was replaced by a larger and more sophisticated structure named ‘Juei’, the Defence Administration.[100] Meanwhile Köppen continued to form the Kishū army according to the Prussian art of war. On 25 January he decided to take in hand personally the education of the battalion commanders, and to teach them first how to lead a platoon and a company, before letting them manoeuvre their entire battalions.[101] The troops received their first drill exercises in rifle loading on 5 February,[102] and began the tactical drill for battalions on 21 February.[103] This training was harsh and intensive, with an uninterrupted combination of conversions, from attack columns to lines of fire, and from lines to columns, on the left or on the right, or formations into squares, and execution of counter-marches, based on the Prussian infantry regulation of 1847.

94 Op. cit., pp. 5–6.
95 Umetani, ‘Shinshutsu no Karl Köppen’, p. 13.
96 Köppen, *Wakayama Tagebuch*, pp. 10, 17 (the 3rd Battalion is mentioned in January and February, but was not yet formed in December; Hōfukuji is also mentioned as one of the three battalion commanders in late December 1869 and early 1870); Umetani, ‘Shinshutsu no Karl Köppen’, pp. 13–14.
97 Umetani, ‘Shinshutsu no Karl Köppen’, p. 12.
98 Köppen, *Wakayama Tagebuch*, p. 11.
99 Op. cit., p. 16.
100 Sakamoto, *Nanki-Tokugawa*, XIII, pp. 253–4.
101 Köppen, *Wakayama Tagebuch*, p. 18.
102 Op. cit., p. 21.
103 Op. cit., p. 23.

On 1 March the conscription law was reviewed.[104] With the new system, military service was universalized, as in Prussia. However, exemptions were defined: a 20-year-old man in a poor physical and mental condition, or the head of family, or an only child, or men with brothers unable to work or already doing their military service. After an examination by a committee of four physicians,[105] all other recruits were called up. Their period of service was also modified, and the concept of a reserve was adopted: nine years of service, divided into three years in the standing army (*jōbi-hei*), three years in the reserve (*yobi-hei*), and the last three years in the auxiliary reserve (*hoketsu-hei*).

Unfortunately, many officers, usually of samurai origin, were violent in their handling of the commoner recruits, forcing Köppen to crack down on their abuses.[106] The education of the officers had to be modernized. On 5 March the *heigakuryō*, or the military science residence, was established at Okayama, near the princely castle, and Major Heishirō Okamoto was its first director. From 19 January, 22 officers and non-commissioned officers were designated as the instructors at the military school,[107] but Köppen complained that they did not yet have the proper experience to teach tactics and drills. All the officers had to be professionally formed inside the walls of Okayama.[108] The cadets, called *Fähnrich*, meaning ensign in German, as in the Prussian army, followed a strict programme with classes in literature, mathematics, sciences, topography, administration, military regulations, leadership, tactics, weaponry, fencing, and horse riding. In the Prussian military system, the non-commissioned officers were crucial intermediaries in the chain of command, and Minister Tsuda decided to educate them too at the *heigakuryō*.

In March 1870 the army's strength was about 3000 men, including 2100 new recruits from the class of 1869. Moreover, the two first battalions had acquired enough elementary discipline and, on 27 March, they completed their first musketry training.[109] With the new conscripts, the plan for 1870 was to increase the army to 7318 regular and territorial troops, and 260 small horses.[110] The regulars were organized in three infantry battalions, one cavalry squadron, one artillery regiment with four mountain batteries, one engineer battalion, and one train squadron. Each infantry battalion of four companies was similar to the Prussian structure, but with a reduced strength of 423 men in its ranks. On 29 January 1870 the Prussian regimental organization was applied to the regular Kishū infantry, with the two musketeer battalions and the skirmisher battalion formed as one regiment.[111] However, the territorial troops constituted 12 battalions as a type of Landwehr infantry. This predominance of the territorial troops was similar to the concept of the pre-Roon Prussian army, but probably due to the limited economic capacity and the number of new conscripts in Kishū, and because of the control by the *dajōkan*. In the artillery each battery fielded six mountain-guns, with three ponies for each gun: one for the barrel, one for the

104 Sakamoto, *Nanki-Tokugawa*, XIII, pp. 241–3.
105 Umetani, 'Shinshutsu no Karl Köppen', p. 27.
106 Köppen, *Wakayama Tagebuch*, p. 31.
107 Op. cit., p. 17; Sakamoto, *Nanki-Tokugawa*, XIII, p. 289.
108 Sakamoto, *Nanki-Tokugawa*, XIII, pp. 288–314.
109 Köppen, *Wakayama Tagebuch*, p. 24.
110 Sakamoto, *Nanki-Tokugawa*, XIII, pp. 315–16.
111 Op. cit., p. 255.

carriage, and one for the ammunition caisson.[112] The build-up of the new army progressed and, on 9 June, Köppen brought back from Ōsaka the last 1400 rifles of the first order provided by the Lehmann-Hartmann Trading Company.[113]

Prussian influence also applied to dress. Majors Endō and Okamoto designed new uniforms based on their own perception of Prussian military fashion. They were defined in the *Bukan Shōfuku*[114] regulation, and distributed to the princely army from 13 June 1870.[115] The dress was black, and composed of a short tunic and trousers. The headgear was an *eboshi*,[116] with a front peak added to look vaguely like a Prussian jäger shako. The officers were differentiated by frock coats with chest cords looped in a floral pattern, while the trumpeters and trumpet-majors wore shoulder-wings inspired by the *Schwalbennester*[117] of Prussian military musicians. The laces were all made of different colours depending on the rank category – *midori* green[118] for the privates and non-commissioned officers, *ai-iro* blue[119] for the junior officers, and golden *cha-iro* brown[120] for the senior officers – with the rank specified by the number of cords overlapping the shoulders. This uniform was apparently the same for all the arms, which were distinguished only by their equipment. The infantrymen were armed with rifles or jäger carbines with bayonets. The cavalrymen had boots and carried carbines, sabres, and lances. The artillerymen were provided with musketoons, and also sabres as side arms. Finally, the engineers used short rifles, but also carried entrenching tools held in black leather covers.

During the early months, Köppen was extremely busy with the formation of the new battalions. But, from the spring, he started to work on the manufacture of cartridges for needle-guns. First, he had to select a suitable location. On 1 May 1870 he and four artillery officers rode on horseback to Wakanoura, a coastal plain spread over a few kilometres south-west of Wakayama, and extended by a sand spit.[121] The various buildings were eventually erected at Takamatsu, a site closer to the capital, but still on the plain of Wakanoura. On 5 January 1871 production began.[122] The maximum output at Takamatsu was 10,000 cartridges a day.[123] The housing of the new and larger army was another problem. As early as 22 December 1869 Köppen had drawn up his first plan for a barracks to accommodate one battalion.[124] In the Kishū army the typical barracks consisted of one or more long buildings, usually with only a ground floor, and one wall with a classical wooden gate capped by a roof.[125] Isolated from

112 *Kölnische Zeitung*, no. 206, 27 July 1871.
113 Köppen, *Wakayama Tagebuch*, p. 33.
114 Military dress and insignia.
115 *Bukan Shōfuku*, principality of Kishū, 1870; Sakamoto, *Nanki-Tokugawa*, IV, pp. 623–4.
116 This headgear is a traditional wing-tip-shaped hat made of lacquered silk or paper, and originally worn by noblemen and priests.
117 'Swallows' nests'.
118 A bright Japanese green.
119 A Japanese shade of mauve.
120 A red-brown Japanese colour.
121 Köppen, *Wakayama Tagebuch*, p. 27.
122 Op. cit., p. 51.
123 Mehl, *Carl Köppen*, p. 59.
124 Op. cit., p. 4.
125 Sakamoto, *Nanki-Tokugawa*, XIII, p. 233.

the main buildings were an arsenal and at least one guardhouse. Western furniture and sentry boxes were added. Each battalion had its own barracks, but only a few of them used new buildings. Most of the troops were housed in castles and temples. The army requisitioned five temples for that purpose on 5 May 1870.[126] Köppen also built a military hospital at Wakayama, set up the *heigakuryō*, and enlarged and improved the training camps.

The military power of Kishū was clearly rising, but the political situation was reaching a new crisis. In Satsuma, Prince Hisamitsu Shimazu and the conservatives struggled against the lower samurais, seated in the *dajōkan*, who intended to abolish the principalities and centralize power. Satsuma reinforced its army of 23,000 troops organized on the British model to prepare for an eventual war; meanwhile similar but more limited conservative movements emerged in Chōshū. If Kishū defended the *dajōkan* against Satsuma, the crisis would create the opportunity to seize the imperial power. On 22 October 1870 Köppen warned that the risk of war against Satsuma was serious.[127] Meanwhile, the army continued to grow: 6 battalions were formed at the end of July[128] and 12 in November.[129] On 20 January 1871 the battalions were downsized, but their number increased from 14 to 32.[130] Four days later 4-pounder breech-loading steel mountain-guns, made by the American firm Broadwell & Co. at its factory in Karlsruhe, in the grand duchy of Baden, and the Doersch and von Baumgarten needle-gun carbines of the disbanded Schaumburg-Lippe army arrived at the Lehmann-Hartmann store at Ōsaka.[131] The plan for 1871 was to maintain a standing army of 17,336 troops, with military expenditures estimated to be about 100,000 koku.[132] However, in February, the crisis was calmed, and the threat of a war against Satsuma receded from Kishū.

## V

In this precarious peace, while Köppen pursued the instruction of the princely army, on 8 April the Prussian steam corvette *Hertha* followed the coast of Wakanoura, and anchored near Wakayama.[133] Maximilian von Brandt, the former attaché of Count Eulenburg, was on board, now as the consul of Prussia and consul-general of the North German Confederation in Japan. Brandt brought with him news of the Prussian victory over France. Köppen welcomed him enthusiastically and, for the next week, he showed him the results of his work with the troops in Kishū.[134] After this inspection, Köppen accompanied the Prussian consul on a two-week cruise on board the *Hertha*, during which he explained his achievements to Brandt. The problem was that he focused on the training of the infantry, his own

126 Köppen, *Wakayama Tagebuch*, pp. 28–9.
127 Op. cit., p. 43.
128 Op. cit., p. 34 (27 July 1870).
129 Op. cit., p. 46.
130 Op. cit., p. 54.
131 Op. cit., p. 55 (24 January); p. 56.
132 Yasunori Oda, *Kindai Wakayama no Rekishiteki Kenkyū* [Historical research on modern Wakayama] (Ōsaka-shi, 1999), pp. 57–9; Mehl, *Carl Köppen*, p. 52.
133 Köppen, *Wakayama Tagebuch*, p. 65.
134 Op. cit., p. 67.

arm of service, but that one man was not enough to build an entire army. He needed instructors for the cavalry, the artillery, the engineers, and the train. Brandt and he agreed on the need to dispatch a complete military mission to Kishū. For the moment, Köppen's military activities were private and commercial but, with a Prussian military mission, they would become official, and Kishū would benefit from the direct support of a major European power. While Brandt and the steam corvette cruised towards Prussia, Köppen landed in Wakayama, and on 9 May he made the decision to return to Europe for the time being.[135] He had to go to Berlin, to obtain and prepare the military mission. Moreover, he had long been homesick, and it was the perfect opportunity to enjoy a stay in Bückeburg with his family.

For the moment, the military mission was only a project, but Köppen received some private assistance. On 12 May the brothers Julius and Adolph Helm, two Prussians from Stettin, in Pomerania, arrived in Wakayama to offer their military service. Julius Helm had been conscripted in the Royal Prussian Army from 1861 to 1863, assigned to the Pomeranian Pioneer Battalion No. 2, and, as a reservist, was mobilized in 1866 for the war against Austria.[136] His younger brother, Adolph, had more limited experience, having served only as a one-year volunteer[137] in the infantry. In 1864 the two brothers had received a legacy from their father, and had been travelling around the world with the money. In Japan they met Brandt, who suggested that they help Köppen in Kishū. The presence of Julius Helm was particularly valuable in the training of the engineer battalion, before it was reinforced by the expected military mission. Helm used a British regulation, but adapted it to the Prussian method.

On 10 July 1871, at Yokohama, Köppen took the steamship *Bombay*.[138] Tsuda went with him to study in Prussia.[139] On 5 September, finally home in Bückeburg, Köppen rested with his family, and consulted Major Funck, his former commanding officer, before taking the train to Berlin, where Brandt was waiting for him.[140] In a letter of 30 September, Brandt had reported Köppen's successful activities to Minister-President Bismarck and Minister of War Roon. The Prussian government was in favour of a military mission to Kishū. However, in November news reached Berlin that the *dajōkan* had abolished the principalities according to the *haihan-chiken*[141] proclaimed on 29 August.[142] All the principalities lost their sovereignty and were handed over to the *tennō*, in fact to the *dajōkan* in the shadow of the imperial throne, and they were turned into prefectures.

The princely armies were also abolished, and replaced by the imperial army, which answered to the *dajōkan*. In November 1871 the imperial army recruited 14,249 samurai volunteers.[143] They were trained mostly according to the British model, while the

135 Op. cit., p. 68.

136 Mehl, *Carl Köppen*, pp. 72–3.

137 In the Prussian army, young men with at least a high-school education, and who agreed to pay their own expenses, were allowed to serve one year only as volunteers instead of being conscripted. At the end of one year of satisfactory service, they would be freed from active duty but provided officers and non-commissioned officers for the reserve or territorial regiments.

138 Umetani, 'Shinshutsu no Karl Köppen', pp. 18–19.

139 Hagihara, *Mutsu Munemitsu*, I, p. 270.

140 Mehl, *Carl Köppen*, p. 75.

141 Abolition of the domains and establishment of the prefectures.

142 *Kindai Nihon Sōgō Nenpyō*, II (Tokyo, 1984), p. 48.

143 T. Hara, *Meiji-Ki Kokudo Bōei Shi* (Tokyo, 2002), pp. 26–30.

education of their officers was still largely influenced by the *rangaku*. However, the *dajōkan* had requested a French military mission, to reform its new army. In spite of the defeat at the hands of Prussia, France was still considered to be a major military power, and the Japanese officers were more familiar with the military science and language of France than those of Prussia.

The Kishū army was disbanded, and the imperial army chose the French model. In consequence, the project of a Prussian military mission was abandoned. But Köppen's legacy was decisive for the emergent Japanese military power later in the century, and for the first victory achieved by the Empire of Japan against the Qing Empire of China in 1894–5. Köppen introduced the Prussian model to Japan, and formed many Kishū officers who were assigned to important posts in the newly founded imperial army. Among them, in 1873, Heishirō Okamoto was appointed as chief of staff of the Tokyo garrison, and Yasumichi Endō as infantry battalion commander in the same garrison. The following year Rinkichi Abe became the cavalry commander of the imperial army, while Torio Koyata, a former Kishū infantry officer, was assigned as the first commander of the Ōsaka garrison. In 1874 Tsuda was promoted to the rank of Major General, and assigned to the Ministry of the Army. Kishū men educated in the Prussian model were everywhere in the military establishment, and the main weapon of the Ōsaka garrison was the needle-gun from the arsenal of the defunct princely army.[144] Moreover, the Prussian model of Kishū was observed closely by the *dajōkan*. Military leaders such as Aritomo Yamagata, Iwao Ōyama, and Tarō Katsura, who returned from Europe fascinated by Prussia, persuaded Japan of the superiority of the Prussian military system. After the Satsuma rebellion of 1877, the imperial army started to study Prussian grand tactics, to transform the garrisons into permanent divisions, and to strengthen logistics. These major changes were mainly achieved between 1885 and 1890 by an official Prussian military instructor, Major Klemens von Meckel, who reformed the staff education following Moltke's principles, and educated a generation of officers who won great victories for the empire.

In conclusion, the adoption of the Prussian military model in feudal Japan was achieved in four stages: 1846, 1860–2, 1866–7, and 1869–71. In 1846 Prussian general Heinrich von Brandt's book about the tactics of the three arms was translated for the first time in Japan. In 1860–2 Prussian-Japanese relations were established, and *bakufu* diplomats and samurais learned about the Roon reforms. They also discovered the needle-gun, and witnessed Prussian military technology and science, including field exercises in Potsdam. The introduction of the Prussian model was concretely realized during the third and fourth steps, and by a specific state: the principality of Kishū. In 1866–7, as a consequence of the Austro-Prussian War in Germany and of the Second Chōshū War in Japan, Kishū decided to equip its army with needle-guns. Finally, in 1869–71, an instructor, Carl Köppen, arrived in Kishū to train the princely army in the use of needle-guns, and a Prussian model of organization and drill was adopted. Later, during the Meiji era, the experience of Kishū and the Prussian victories against Austria and France decided Japan to improve its military power by reforms under Prussian influence.

144 *Heiki Enkaku-Shi*, I (Tokyo, 1920), Ministry of the Army, pp. 74–85.

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